Exhibit 13

United States of America ex rel. Ven-a-Care of the Florida Keys, Inc. v. Dey, Inc., et al.,
Civil Action No. 05-11084-PBS

Exhibit to the Memorandum In Support of United States' Motion To Exclude Certain Opinions
of W. David Bradford, PH.D

State Medicaid Pharmacy Payments and Their Relation to Estimated Costs

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Although prescription drugs do not appear to be a primary source of recent surges in Medicaid spending, their share of Medicaid expenditures has risen despite efforts to control costs. As part of a general concern with prescription drug policy, Congress mandated a study of the adequacy of Medicaid payments to pharmacies. In this study, several data sources were used to develop 1991 estimates of average pharmacy ingredient and dispensing costs. A simulation was used to estimate the amounts States pay. Nationally, simulated payments averaged 96 percent of estimated costs overall but were lower for dispensing costs (79 percent) and higher for ingredient costs (102 percent).

INTRODUCTION

Growth in Medicaid expenditures has recently become a major policy concern. Medicaid expenditures are growing faster than any other State budgetary expense. Total Medicaid expenditures and in particular drug benefit expenditures have in most States grown substantially, yet drug expenses as a percentage of the total Medicaid budget have risen relatively slowly. The adequacy and fairness of Medicaid payments to pharmacies are of concern, thus differences in how States set these payment levels are important.

Over the years, there has been Federal legislation aimed at controlling program

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costs for prescription drug benefits. In 1987, States were given more flexibility in establishing their own payment methodologies. State payment policies now vary for the two major drug classifications. For multisource drugs, there can be State maximum allowable charge (MAC) limits in place that differ from the Federal maximums, although States' payments must stay within the Federal aggregate expenditure limits. For other (non-multisource) drugs, States pay for the lower of the pharmacy's usual and customary charges or the estimated acquisition cost (EAC) as determined by the State.

Pertinent to this study, section 4401(d)(4) of the Omnibus Budget Reconciliation Act of 1990 required the Secretary of Health and Human Services to conduct a study on reimbursement rates to pharmacists. The specific mandates for the study were to determine:

- "the adequacy of current reimbursement rates to pharmacists under each State medical assistance programs [sic] conducted under Title XIX of the Social Security Act.
- the extent to which reimbursement rates under such programs have an effect on beneficiary access to medications covered and pharmacy services under such programs."

Although the relationship between adequacy and access was addressed in a larger report (Adams, Gavin, and Kreling, 1993), this article provides findings related only to the level and adequacy of State payments for Medicaid pharmaceutical services. Specifically, it addresses the following questions:

- Are State payments adequate in relation to the costs of dispensing drugs, and are they generally above estimated marginal costs?
- Does the payment adequacy differ for ingredient versus dispensing costs?
- Are there regional patterns in terms of adequacy of payment?

To answer these questions, 1991 data from several sources were used to derive key measures of payment levels and adequacy. The method for measuring the adequacy of State payments involves two major steps: (1) developing estimates of average pharmacy ingredient and dispensing costs at the State level; and (2) simulating State Medicaid payments for the same set of drugs. The difference between these payment and cost measures for a representative market basket of drug products forms the basis of the adequacy measure presented here. That is, adequacy is measured relative to average total costs, before profits. The results must be considered in light of the data constraints and assumptions made in deriving estimates.

Although Federal Medicaid regulations dictate the method for paying for prescription drugs, it is ultimately the interaction of Federal and State policies that determines the level of State payments for pharmacy services. States have significant flexibility in their Medicaid eligibility and payment policies. The challenge for this study was to examine the issue of adequacy of State payment at a national level, recognizing that the unique circumstances of each State may affect these outcomes. The focus of this study was on data and measures that are available and consistent for all, or the majority of, States for a given time period. By examining data for the Nation as a whole, the study provides a better understanding of Federal drug payment policy and its implementation in each State and provides a comparative understanding across States.

BACKGROUND

There are numerous definitions of terms specific to pharmaceutical payment policies. To aid the reader, we have provided a glossary of key terms shown in Table 1.

It is also helpful to consider how these terms relate to the adequacy measures estimated by this study. There are two components to this measure: dispensing and ingredient. All of the terms in Table 1

Table 1

Definitions of Terms Specific to Pharmaceutical Payment Policy

Term	Definition
Actual Acquisition Cost (AAC)	Pharmacist's net payments made to purchase a drug from any source (e.g., manufacturer, wholesaler) net of discounts, rebates, etc.
Estimated Acquisition Cost (EAC)	An estimate of pharmacies' actual acquisition costs that are made by the States and other third-party payers.
Maximum Allowable Cost (MAC)	A maximum dollar amount the pharmacist is paid for selected products.
Average Manufacturer's Price (AMP)	The average price paid by wholesalers to manufacturers for products to be distributed to retailers.
Average Wholesale Price (AWP)	The manufacturer's suggested wholesale price to the retailer, listed in either the Red or Blue Book.
Wholesale Acquisition Cost (WAC)	The wholesaler's net payment made to purchase a drug product from the manufacturer, net of purchasing allowances and discounts.

SOURCE: Adams, E.K., Emory University School of Public Health, Atlanta, GA, and Gondek, K., Health Care Financing Administration, Baltimore, MD, 1993.

actually relate to the latter component. With respect to drug ingredients, the cost to the pharmacist is referred to as the actual acquisition cost (AAC). Given the complexity of measuring these costs, States have instead used the EAC.

The information used to estimate these acquisition costs is generally the average wholesale price (AWP), which is not, however, a direct measure of true acquisition costs. This is actually the suggested wholesale price to the pharmacy; in reality, wholesalers compete with each other by offering pharmacies different discounts from this price. In addition, some pharmacies purchase directly from the manufacturer, skipping the wholesaler entirely and thereby reducing their costs. Estimates of the range of discounts from AWP that are available to pharmacies range from 10 to 18 percent (Health Care Financing Administration, 1992). In light of this, the majority of States estimate acquisition costs by deducting a percentage from the published AWP. Others use information on the wholesale acquisition cost (WAC) and add a certain percentage. This reflects the fact that wholesalers commonly add a markup to their own acquisition costs when establishing a price to charge the pharmacy. Ultimately, these State estimates may be an under- or overstatement of actual costs. This study used data on wholesalers' invoices to pharmacies by region to gain some insight on pharmacists' AAC by State.

In analyzing the pharmacy payment, it is important to recognize some salient characteristics of retail pharmaceutical services. First, the structure of this retail service is varied, as prescription medications are dispensed in a variety of settings. These include (1) independent pharmacies that provide goods and sundries in addition to prescriptions and that operate as small business entities; (2) professional pharmacies that sell only prescriptions and that operate as small business entities; (3) chain pharmacies, which may be freestanding or located within a grocery or other type of retail store and which buy drugs in volume; (4) pharmacies situated in health clinics, hospital outpatient departments, and health maintenance organizations; and (5) mail-order pharmacies that offer prescription drug services to specially enrolled groups. This study does not include information on either of the last two settings.

Other aspects of the retail pharmacy business also make cost analysis difficult. For many providers, drugs are not the only type of goods sold or services provided. Moreover, Medicaid constitutes a relatively small fraction of the total business for most providers. Independent pharmacies have historically provided a larger percentage of their services to Medicaid enrollees than chain stores have. Whereas Medicaid covered 18.9 percent of all retail prescriptions in 1989 (Schondelmeyer and Thomas, 1990), Medicaid prescriptions accounted for more than 23.5 percent of all prescriptions dispensed by independents and only 11.2 percent of those dispensed by chain stores. Finally, much of the cost of providing prescriptions, the ingredient costs, is not under the direct control of the pharmacy.

As noted earlier, issues surrounding pharmacy payment under Medicaid must be considered in light of the dramatic increases in the growth rate in expenditures experienced by the majority of States. Although prescription expenditures remain a relatively small percentage of the total, this perhaps understates their importance in the overall management and treatment of an episode of illness and/or chronic condition. In many instances drugs may, when

used appropriately, effectively lower total expenditures for an episode of illness compared with what they might otherwise be. Thus, in efforts to control overall program outlays, policymakers must consider not only the role of payment policy in affecting total expenditures but in creating an environment for access to appropriate and effective drug therapy.

Overall, States are directed to pay on a retrospective fee-for-service basis with payments limited to the lower of the pharmacy's usual and customary charge or the EAC of the drug product plus an established dispensing fee to cover the pharmacy's overhead and profit. Medicaid payment policy for pharmaceutical services varies from State to State not only in terms of the basis of payment but also in terms of the drugs covered by MACs, the level of the payment for dispensing fees, and other aspects of the payment program that can affect adequacy. Furthermore, there are factors other than the payment amounts that affect pharmacy profits.

DATA

Several data sources were used to complete this study. These data sets, their role in the overall analysis, and issues addressed in using them are briefly summarized here.

A significant amount of information was drawn from the data bases available through IMS America (1991), which gathers data from more than 175,000 U.S. sites. The primary use of these data in this study was to derive State-level estimates of the pharmacies' ingredient costs for a market basket of drugs. The data needed for these purposes came from two separate sources at IMS America: the U.S. Drugstore Audit and the Prescription Data Base. Wholesale data from the U.S. Drugstore Audit data

base were the primary source of information used to generate the average per unit ingredient costs for a market basket of drugs. The per unit costs were derived from all sales (not just those related to Medicaid) made by wholesalers at the regional level to chains and independent pharmacies during the fourth quarter of 1991. These dollar values were the basic building block for the derivation of ingredient-cost estimates for each drug and in each State (Table 2). Note that these amounts do not reflect discounts that do not appear on the invoice (e.g., rebates and discounts for payment within 30 days), and therefore may overestimate true acquisition costs.

Data from the Prescription Data Base were used to move from the regional to the State level by using the counts of chain and independent pharmacies in each State along with the per unit cost data from the U.S. Drugstore Audit. The Prescription Data Base file was also used to provide counts of pharmacies participating in Medicaid in the larger study. Pharmacies are characterized on the basis of size (monthly sales of less than $45,308, versus sales of $45,308 or more) and whether they were part of a chain or were independent. These data were drawn for the month of December 1991. Although the type of store was known in the aggregate, no information on individual stores was made available by IMS America.

Data from First Databank (1992) were used in the simulation of State payments for the market basket of specific drugs. First Databank maintains data on various pricing strategies used by States for current and historical periods. Data are retained by unique national drug codes (NDCs) currently in place for specific products.

The Health Care Financing Administration's (1991a) Tape-to-Tape data were used

Table 2

Weighted State Estimates of Ingredient Costs Per Prescription for Drugs in the Market Basket and Estimated Dispensing Costs, by State: 1991

Division and State	Weighted Average Ingredient Costs	Estimated Dispensing Costs
U.S. Average	$18.33	$5.55
New England		
Connecticut	17.90	6.51
Maine	17.81	5.08
Massachusetts	18.14	5.97
New Hampshire	17.86	5.50
Rhode Island	17.88	6.06
Vermont	18.05	5.00
Middle Atlantic		
New Jersey	17.90	6.65
New York	17.95	5.99
Pennsylvania	17.82	5.65
East North Central		
Illinois	17.49	5.69
Indiana	17.45	5.38
Michigan	17.10	5.93
Ohio	17.49	5.55
Wisconsin	17.54	5.32
West North Central		
Iowa	17.93	5.22
Kansas	17.87	4.95
Minnesota	17.91	5.46
Missouri	17.77	5.10
Nebraska	17.48	4.89
North Dakota	17.98	5.16
South Dakota	17.93	4.88
South Atlantic		
Delaware	17.29	5.98
District of Columbia	17.68	NA
Florida	17.43	5.48
Georgia	17.50	5.07
Maryland	17.53	6.06
North Carolina	17.32	5.01
South Carolina	21.34	5.11
Virginia	17.35	5.28
West Virginia	17.24	5.22
East South Central		
Alabama	18.07	5.30
Kentucky	17.82	5.26
Mississippi	17.95	5.03
Tennessee	17.84	5.07
West South Central		
Arkansas	18.19	4.87
Louisiana	18.08	5.34
Oklahoma	23.29	5.12
Texas	22.16	5.08
Mountain		
Colorado	18.05	5.41
Idaho	18.10	5.38
Montana	18.20	5.30
Nevada	17.99	6.08
New Mexico	18.08	5.47
Utah	18.03	5.75
Wyoming	18.14	5.49
Pacific		
Alaska	16.88	8.23
California	27.41	6.42
Hawaii	16.70	6.62
Oregon	16.50	5.68
Washington	17.02	5.94

SOURCES: (IMS America, 1991); (Health Care Financing Administration, 1991b).

to determine the Medicaid population's drug usage. Data on total prescription volume and expenditures were used to help derive the initial market basket, average product size, and expenditure weights for the drugs in the final market basket. Data from three of these States—California, Georgia, and Michigan—were used in this study. Data from 1990 were the most recent available.

The major source of data on the costs of operating an independent pharmacy is the *Lilly Digest* (1991). The *Lilly Digest* data are derived through a voluntary survey of participating independent community pharmacies across the country. These surveys collect data on types of pharmacy costs (e.g., rent, wages, and depreciation) and were used to give insight into the variation in dispensing costs between chains and independent pharmacies, taking into consideration differences in sales volume and geographic area. Given problems with the size and structure of this data base's sample, the data were used primarily in a descriptive sense and to gain an understanding of the overall cost structure of these two pharmacy types.

Finally, the National BioSystems Survey of State Medicaid Agencies was used (Health Care Financing Administration, 1991b). This survey collected information from each State's Medicaid agency on measures of State-level pharmacy dispensing costs as estimated by the individual States.

METHODS

Before we could derive estimates of costs and payments for drugs dispensed to Medicaid enrollees, we had to first decide which specific drugs to include in the analysis. To do this, a market basket of drugs most representative of those dispensed to Medicaid enrollees was derived.

The derivation of the market basket began with a list of the top 150 drugs (based on expenditures) dispensed under Medicaid in four States—California, Georgia, Michigan, and Wisconsin—during 1990. This initial market basket was condensed to remove duplicate dosage and strength forms and to focus primarily on solid, oral forms of the drugs for which units (tablets, capsules, caplets, etc.) are easier to measure. This left 75 drugs, to which 10 more were added, based largely on the basis of their claims rank. The list was reviewed for representativeness by broad therapeutic group (e.g., cardiovascular, antibiotic, respiratory, hormonal) and by patent status (single or multisource). A few deletions were made and an additional antipsychotic drug was chosen, which brought the list to 80 (Table 3).

This list of 80 drugs was used to identify almost 2,000 related products. From these, we deleted most drug products that were not oral solids or that did not match any NDC codes in the First Databank files. Only a handful of NDCs ultimately could not be matched. The final master list available for completing the derivation of ingredient cost and payment measures equaled a little over 1,600, a sample sufficiently large to be representative of a State's payment adequacy.

The final market basket varied in each region as a result of the sometimes small volume of certain drug products within that region. The final market basket, therefore, varies somewhat from State to State. In addition to a lack of volume within a region, States' market baskets were affected by missing data. For example, wholesale unit price, taken from First Databank to measure WAC in States that use this in their formulas, was sometimes missing.

State Estimates of Ingredient Costs

Ingredient costs are significant to the operation of any pharmacy in that they are largely beyond the control of the pharmacy and are a large component of total costs. Costs of goods (all goods) sold constitute approximately 70 percent of total costs for pharmacies. Thus, knowledge of the variation in ingredient costs across areas and pharmacy types is very important to the adequacy of State payment. The methods used to derive ingredient-cost estimates for this study are briefly described here. These methods allow us to reflect variation in the ingredient purchasing costs across regions and within regions, by pharmacy type.

Based on the raw IMS America data, per unit purchasing costs vary only slightly across regions of the country; the average difference in the per unit costs across regions for the 50 drugs with the highest volume of transactions (during the 4th quarter of 1991) was only 0.3 percent. To move from the regional data to estimates of what drugs cost pharmacies in each State, additional regional-level data from IMS America were obtained on variations in acquisition cost to pharmacies within regions. Ranges on per unit costs were obtained for a small sample of drugs (both brand names and generics). In selecting these products, we sought diversity across brand and generic product groups, therapeutic categories, and manufacturers, as this would allow us to check for differences in price distribution behaviors across these variables. As expected, the within-region spreads varied from 3 to 5 percent for brand products and from 1 to 9 percent for generic products. When averaged across all drug products, the spread in acquisition costs within each region ranged from 3 to 5 percent.

Although we would also expect to observe variation in the per unit ingredient costs based on the size (or type) of the individual pharmacy, data on this variation are not available from IMS America. In the absence of these data, a weighted average price for each drug product was derived using the spread in acquisition costs within each region (previously discussed) and the following assumptions:

- Large chains at average IMS America unit cost * (1 - 0.5 * percentage of the acquisition cost spread).
- Small chains and large independents at average IMS America unit cost.
- Small independents at IMS America unit cost * (1 + 0.5 * percentage of the acquisition cost spread).

The above assumptions rest on information from earlier studies regarding the price discounts that can be obtained when purchasing larger volumes (Kreling, 1991; Kreling and Kirk, 1986; Gagnon and Rodowskas, 1974) and knowledge of the relative prescription volumes that independents and chains supply. Recall that large pharmacies are defined in the IMS data as those with $45,308 or more in sales per month. We assume that chain pharmacies with high prescription volumes ("large chains") would obtain the best prices from wholesalers by virtue of the purchase volumes, both as individual stores and as part of the chain. In addition, these stores achieve economies through their own warehousing operations. Independent pharmacies with large prescription volumes and small-volume chain pharmacies were grouped together as a middle, average-cost group. Although chains with small prescription volumes may obtain economies through their own warehousing operations, their costs for items not available from their warehouse, or from a secondary wholesaler, would be higher than other

pharmacies'. In total, their purchases would reflect what might be typical for an independent pharmacy, thus representing the norm in a wholesaler's purchase mix. Independents with low prescription volumes would have the least ability to obtain favorable purchasing terms and thus would have the highest purchase costs.

These three values (for low, medium, and high purchasing costs) were weighted by the total number of prescriptions supplied by each of these pharmacy types, as shown in this equation:

$$C^*_{is} = (\sum_{j=1}^{n} C_{ijR} * W_{js}) \ / \ \sum_{j} W_{js}$$

where:

C^*_{is}	=	estimated average ingredient cost of the ith drug product in each State
C_{ijR}	=	per unit cost for the ith drug product in region R assigned to the jth pharmacy-size-and-type category for State(s) in region R
i	=	1 ... n drug products in the market basket
R	=	region
j	=	pharmacy-size-and-type category
W_{js}	=	number of prescriptions of pharmacies in j^{th} size-and-type category in State

The data on the number of prescriptions provided by each pharmacy type were derived as noted earlier, from the IMS America Prescription Drug File. The effect of this weighting depended on how much variation in pharmacy size and volume there was across States within a region. To the extent that this reflected State-level detail about the pharmaceutical industry, this made the ingredient-cost estimates more relevant to specific States.

Table 3
List of Market Basket Drugs, by Brand and Generic Names

Drug List by Brand Name		Drug List by Generic Name	
Brand Name	Generic Name	Generic Name	Brand Name
Amoxil 250mg susp	Amoxicillin	Acetaminophen with codeine	Tylenol with codeine #3
Anaprox 275mg	Naproxen sodium	Acyclovir	Zovirax 200mg
Atrovent inhaler	Ipratroprium bromide	Albuterol inhaler	Proventil inhaler
Augmentin 250mg	Amoxicillin/k clavulanate	Alprazolam	Xanax 0.5mg
Benadryl 25mg	Diphenhydramine	Amitriptyline	Elavil 25mg
Buspar 10mg	Buspirone HCl	Amoxicillin	Amoxil 250mg susp
Calan sr 240mg	Verapamil HCl	Amoxicillin/k clavulanate	Augmentin 250mg
Capoten 25mg	Captopril	Astemizole	Hismanal 10mg
Carafate 1gm	Sucralfate	Atenolol	Tenormin 50mg
Cardizem 30mg	Diltiazem HCl	Baclofen	Lioresal 10mg
Ceclor 250mg cap	Cefaclor	Benztropine mesylate	Cogentin 2mg
Ceftin 500mg	Cefuroxime axetil	Bromocriptine mesylate	Parlodel 2.5mg
Cipro 500mg	Ciprofloxacin HCl	Buspirone HCl	Buspar 10mg
Clinoril 200mg	Sulindac	Captopril	Capoten 25mg
Cogentin 2mg	Benztropine mesylate	Carbamazepine	Tegretol 200mg
Coumadin 5mg	Warfarin sodium	Carbidopa/ levodopa	Sinemet 25/100
Darvocet-N 100	Propoxyphene napsylate/acetaminophen	Cefaclor	Ceclor 250mg cap
Deltasone 5mg	Prednisone	Cefuroxime axetil	Ceftin 500mg
Depakote 250mg	Divalproex sodium	Cephalexin HCl	Keftab 500mg
Deponit 0.2mg/hr ptch	Nitroglycerin	Cimetidine	Tagamet 400mg
Diabeta 5mg	Glyburide	Ciprofloxacin HCl	Cipro 500mg
Dilantin 100mg	Phenytoin sodium	Clemastine/ phenylpropanolamine	Tavist-D tab sa
Dolobid 500mg	Diflunisal	Clonazepam	Klonopin .5mg
Dyazide	Hydrochlorothiazide/triamterene	Cyclobenzaprine HCl	Flexeril 10mg
Elavil 25mg	Amitriptyline	Cyclosporine	Sandimmune 100mg
Erythrocin 250mg	Erythromycin stearate	Diflunisal	Dolobid 500mg
Feldene 20mg	Piroxicam	Digoxin	Lanoxin 0.125mg
Flexeril 10mg	Cyclobenzaprine HCl	Diltiazem HCl	Cardizem 30mg
Glucotrol 10mg	Glipizide	Diphenhydramine	Benadryl 25mg
Halcion 0.125mg	Triazolam	Dipyridamole	Persantine 25mg
Haldol 1mg	Haloperidol	Divalproex sodium	Depakote 250mg
Hismanal 10mg	Astemizole	Enalapril maleate	Vasotec 10mg
Humulin n 100	Insulin nph human recomb.	Erythromycin stearate	Erythrocin 250mg
Inderal 40mg	Propranolol	Famotidine	Pepcid 40mg
Insulin nph u100	Insulin nph (or lente)	Fluoxetine HCl	Prozac 20mg
Kaon-cl	Potassium chloride	Furosemide	Lasix 40mg
Keftab 500mg	Cephalexin HCl	Gemfibrozil	Lopid 300mg
Klonopin .5mg	Clonazepam	Glipizide	Glucotrol 10mg
Lanoxin 0.125mg	Digoxin	Glyburide	Diabeta 5mg
Lasix 40mg	Furosemide	Haloperidol	Haldol 1mg
Lioresal 10mg	Baclofen	Hydrochlorothiazide/triamterene	Dyazide
Lithonate	Lithium carbonate	Ibuprofen	Motrin 600mg
Lopid 300mg	Gemfibrozil	Indapamide	Lozol 2.5mg
Lopressor 100mg	Metoprolol tartrate	Insulin nph human recomb.	Humulin n 100
Lozol 2.5mg	Indapamide	Insulin nph (or lente)	Insulin nph u100

See footnotes at end of table.

Table 3—Continued
List of Market Basket Drugs, by Brand and Generic Names

Drug List by Brand Name		Drug List by Generic Name	
Brand Name	Generic Name	Generic Name	Brand Name
Mellaril 50mg	Thioridazine HCl	Ipratropium bromide	Atrovent inhaler
Mevacor 20mg	Lovastatin	Ketoprofen	Orudis 75mg
Motrin 600mg	Ibuprofen	Levothyroxine sodium	Synthroid 0.1mg
Nolvadex 10mg	Tamoxifen citrate	Lithium carbonate	Lithonate
Noroxin 400mg	Norfloxacin	Lovastatin	Mevacor 20mg
Ortho-novum 7/7/7	Norethindrone-ethinyl estradiol	Metoprolol tartrate	Lopressor 100mg
Orudis 75mg	Ketoprofen	Naproxen sodium	Anaprox 275mg
Pamelor 25mg	Nortriptyline HCl	Nifedipine	Procardia 10mg
Parlodel 2.5mg	Bromocriptine mesylate	Nitroglycerin	Deponit 0.2mg/hr patch
Pen-Vee K 250mg	Penicillin V potassium	Norethindrone-ethinyl estradiol	Ortho-novum 7/7/7
Pepcid 40mg	Famotidine	Norfloxacin	Noroxin 400mg
Percocet	Oxycodone/acetaminophen	Nortriptyline HCl	Pamelor 25mg
Persantine 25mg	Dipyridamole	Oxycodone/acetaminophen	Percocet
Phenobarbital 30mg	Phenobarbital	Penicillin V potassium	Pen-Vee K 250mg
Procardia 10mg	Nifedipine	Pentoxifylline	Trental 400mg
Proventil inhaler	Albuterol inhaler	Phenobarbital	Phenobarbital 30mg
Prozac 20mg	Fluoxetine HCl	Phenytoin sodium	Dilantin 100mg
Retrovir 100mg	Zidovudine	Piroxicam	Feldene 20mg
Sandimmune 100mg	Cyclosporine	Potassium chloride	Kaon-cl
Seldane 60mg	Terfenadine	Prednisone	Deltasone 5mg
Septra ds	Sulfamethoxazole/trimethoprim	Propoxyphene napsylate/acetaminophen	Darvocet-N 100
Sinemet 25/100	Carbidopa/ levodopa	Propranolol	Inderal 40mg
Synthroid .1mg	Levothyroxine sodium	Ranitidine	Zantac 300mg
Tagamet 400mg	Cimetidine	Sucralfate	Carafate 1gm
Tavist-D tab sa	Clemastine/ phenylpropanolamine	Sulfamethoxazole/trimethoprim	Septra ds
Tegretol 200mg	Carbamazepine	Sulindac	Clinoril 200mg
Tenormin 50mg	Atenolol	Tamoxifen citrate	Nolvadex 10mg
Theo-dur 300mg	Theophylline	Terfenadine	Seldane 60mg
Timoptic 0.5% drops	Timolol maleate eye drops	Theophylline	Theo-dur 300mg
Trental 400mg	Pentoxifylline	Thioridazine HCl	Mellaril 50mg
Tylenol w/ codeine #3	Acetaminophen w/ codeine	Timolol maleate eye drops	Timoptic 0.5% drops
Vasotec 10mg	Enalapril maleate	Triazolam	Halcion 0.125mg
Xanax 0.5mg	Alprazolam	Verapamil HCl	Calan sr 240mg
Zantac 300mg	Ranitidine	Warfarin sodium	Coumadin 5mg
Zovirax 200mg	Acyclovir	Zidovudine	Retrovir 100mg

NOTES: HCl is hydrochloric acid.   Susp is suspension.   Mg is milligram(s).   Gm is gram(s).   Cap is capsules.

SOURCES: (First Databank, 1992); (Health Care Financing Administration, 1991a).

The next step in deriving an estimate of the ingredient costs in each State involved moving this estimate to the prescription level. To do this, the State measure of per unit (e.g., per tablet) ingredient cost was multiplied by the most common prescription size dispensed to Medicaid enrollees. As noted, Tape-to-Tape data are used to derive the average product sizes; methods specific to this adjustment are explained in more detail in the section on payment simulations. Finally, these average prescription ingredient costs were weighted by the relative proportion of total volume that each drug represented in the overall market basket as determined from the Tape-to-Tape data.

State Variation in Pharmacy Dispensing Costs

The best method to derive dispensing costs would be to use a probability sample of pharmacies in each State and a national survey instrument to ensure consistency and statistical reliability. Such data do not exist. Estimating State-level dispensing costs was problematic because the data on dispensing costs obtained by the National BioSystems survey mentioned earlier were available for only 20 States. Data for two additional States, Rhode Island and North Carolina, were available from more recent surveys (Schafermeyer and Cataldo, 1992; Kilpatrick, Norwood, and Thorpe, 1992). Because the remaining study data used were for the 1990-91 period, all measures of dispensing costs from the National BioSystems surveys were updated to 1991, using the Consumer Price Index (CPI) for prescriptions. This assumes that dispensing costs moved with overall inflation in prescription prices. The average of the dispensing costs estimated in this fashion was $6.16, quite comparable to an estimate derived by weighting the

dispensing cost estimates for chains and independents by the proportion of community pharmacies; this weighted value was also updated to 1991 (yielding an estimate of $6.08) by the 6-percent annual growth rate found in other data (Adams, Gavin, and Kreling, 1993).

The $6.08 national average was used to derive State-level dispensing costs based on a State-level index developed for measuring variation in physician practice costs between urban and rural areas (Zuckerman, Welch, and Pope, 1990). This index was weighted by each State's population in urban and rural areas and then simply multiplied by the $6.08 value to derive State estimates of dispensing costs. The advantage of using the physician index is that it is derived in the same fashion for each State and it uses estimates of input-cost variation across States that are likely correlated with the costs of pharmacy operations. That is, factors causing physicians' hourly rates (e.g., general costs of living) and overhead costs (e.g., rents) to be high in one area of the country are likely to cause pharmacy salaries and overhead to also be high.

State Payment

The last step necessary to measure payment adequacy was to derive an estimate of what States pay for the market basket of drug products. To derive an estimate of payments specific to the drugs in the market basket, we simulated State payments. Although a simulation of State payments can provide significant insight, we were not able to incorporate every detail that would affect these payments. However, most major aspects of payment were addressed. The simulation relied primarily on the data from First Databank on wholesale prices and Federal and State upper limits in deriving the basic estimates as follows:

Total State
Payment   =   ((MIN (SPY1, SPY2) *
                 Average Product Size))
                 + DISP

where:

SPY1   =   the result of the State's
             ingredient-cost formula
             (either AWP less a percent-
             age or WAC plus a percent-
             age), as reported by
             National Pharmaceutical
             Council (1992).

SPY2   =   the Federal or State upper
             limit (MAC), whichever is
             applicable.

DISP   =   the States' dispensing fee
             (National Pharmaceutical
             Council, 1992).[1]

The result of this calculation for each of the individual drug products in the market basket formed the basis of the simulation. Refinements were made to this basic payment amount to reflect policies that limit the number or size of prescriptions and mandate generic substitution. Average product sizes were used from a Tape-to-Tape State (or group of States) that more closely reflected each State's policy in this regard. See the Technical Note for a description of our methods.

In those States that required substitution of generic drugs when available (National Pharmaceutical Council, 1992), a separate set of volume weights was used. These policies require the pharmacist to dispense generic multisource products when available, and this policy changes the mix of products dispensed within the Medicaid program. In States with this policy, it was necessary to increase the importance of generic products in the simulated payment. This was accomplished by removing the brand-name product for each drug entity and redistributing the number of prescriptions for those products to the remaining generic products, based on the proportion of all generic product prescriptions for each generic manufacturer. To derive these alternative weights, all brand-name versions of drugs that were multisource were omitted from the Tape-to-Tape data on volume for the market basket of drugs (codes denoting multisource and brand names were used to flag these products). The market basket weights were then recalculated.

RESULTS

Results of the average costs of purchasing the ingredients for drug products typically dispensed to Medicaid enrollees are shown in Table 2. The State values shown in these data reflect the final weighting used: the relative importance of each prescription in the Medicaid market basket of drugs. The average dollar value paid across the set of market baskets for all States was $18.33. As the data in Table 2 show, there is very little variation around this average in terms of what States' pharmacies must pay to purchase ingredients. Most of the States' and regions' pharmacies pay between 95 and 100 percent of this average value. There does appear to be a tendency for higher ingredient costs to be experienced by pharmacies operating in Oklahoma, Texas, California, and South Carolina. These somewhat higher costs may reflect differences in the wholesalers of drugs located in these States' regions, the mix of pharmacy types (e.g., chain versus independent, and size) operating within

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[1] The National Pharmaceutical Council (1992) reports State ranges in the dispensing fee and whether or not there is some other complication in how the State pays for dispensing fees. States with complications were flagged and their dispensing fee amounts were simulated to take into account details where possible. If we could not simulate the formula, calls were made to the States to obtain a mean value to use in the simulation. The values reported in Table 4 for all States flagged are averages derived from the simulation for the specific drugs in the market basket.

each State, and/or factors affecting the mix of drugs and prescription size dispensed in each individual State. In California, for example, larger prescriptions tend to be dispensed at a time.

Table 2 also shows the dispensing cost estimates derived as described earlier. The national average is $5.55 and ranges from a low of $4.87 in Arkansas to $8.23 in Alaska. This variation reflects largely the variation in the factors affecting the costs of doing business across these States. The general cost of living (e.g., rent) affects not only personnel salaries but the costs of renting building space, etc. The estimates just given would indicate these costs are significantly higher in Alaska than in Arkansas. Indeed, the estimated costs are generally lower in the Southern States and regions and higher in the New England, Middle Atlantic, and Pacific regions.

Taken together, the cost estimates shown in Table 2 indicate that the dispensing of the typical market basket of Medicaid prescriptions costs the Nation's pharmacies approximately $24. If these costs were marked up to reflect the average profit rate of pharmacies, this would put the average Medicaid prescription at the higher end of the range of charges for all prescriptions. Average charges per prescription in 1990 were $38.83, $23.10, $21.45, and $20.22, ranging respectively from small-volume (fewer than 25 prescriptions daily) to large-volume (125-150 prescriptions daily) pharmacies (Eli Lilly and Company, 1991). There is also significant variation around this average total cost value across the States, with Oklahoma, Texas, California, and South Carolina again being States with higher-than-average costs.

Payment Adequacy

Adequacy of payment has been measured in this study by simply dividing the estimated average payment by estimated costs for the market basket of drugs. These ratios have been derived overall as well as separately for ingredient and dispensing costs. Results of the estimates of overall payment adequacy are shown in Table 4. This table also presents a basic description of the States' payment methodologies. As discussed earlier, States use either a percent reduction from AWP or a percent addition to WAC as their basis of payment for ingredient costs. The overwhelming majority of States use the first method and the percent reduction ranges from zero in some States (e.g., Rhode Island, New York, Pennsylvania, West Virginia, and Idaho) to a high of 12 percent (Utah). This wide range of estimates of acquisition costs reflects the uncertainty the States experience in determining what pharmacies actually pay for ingredients for prescription drugs. Payments for dispensing fees, also shown in this table, vary widely across the States. Although there does seem to be the tendency for States that have greater reductions from AWP to pay more generously for dispensing fees, there are clearly other factors affecting these patterns across the States.

The measurements of payment adequacy are also presented in Table 4, shown as the ratio of payments to costs for ingredients, the ratio of payments to costs of dispensing, and the combined ratio. In general, States appear to pay adequately for pharmacy services, although many fall slightly below the estimates of cost before profits. The (unweighted) average payment-to-cost ratio for the Nation, as estimated here, equals 96 percent. This estimated ratio varies somewhat across the States as shown in Table 4. The 12 States paying more than adequately, or 100 percent (or more) of the estimated costs, are distributed throughout the country. Although there are no clear regional

Table 4
State Basis for Payment and Measures of Payment Adequacy, Overall and by Component: 1991

Division and State	Basis of State Payment		Payment Adequacy		
	Ingredient Cost	Dispensing Fee	Ingredient Cost	Dispensing Fee	Overall
			Ratio of Payments to Costs		
U.S. Average	—	4.34	1.02	0.79	0.96
New England					
Connecticut	AWP less 8 percent	[1]4.10	1.03	0.68	0.93
Maine	AWP less 5 percent	3.35	1.07	0.66	0.97
Massachusetts	WAC plus 19 percent	4.06	0.88	0.68	0.83
New Hampshire	AWP less 10 percent	[1]3.50	1.01	0.64	0.92
Rhode Island	AWP	3.40	1.16	0.56	1.01
Vermont	AWP less 10 percent	4.25	1.05	0.85	1.00
Middle Atlantic					
New Jersey	[2]AWP less 6 percent	[1]4.04	1.09	0.61	0.96
New York	AWP	2.60	1.17	0.43	0.99
Pennsylvania	AWP	3.50	1.11	0.62	0.99
East North Central					
Illinois	AWP less 10 percent	[1]3.58	0.95	0.66	0.88
Indiana	AWP less 10 percent	4.00	1.06	0.74	0.98
Michigan	AWP less 10 percent	3.72	1.00	0.63	0.90
Ohio	AWP less 7 percent	3.23	1.01	0.58	0.90
Wisconsin	AWP less 10 percent	4.69	1.01	0.88	0.97
West North Central					
Iowa	AWP less 10 percent	[1]5.24	1.05	1.00	1.04
Kansas	AWP less 10 percent	[1]5.06	0.98	1.02	0.99
Minnesota	AWP less 10 percent	4.10	1.05	0.75	0.97
Missouri	AWP less 10.43 percent	4.09	1.00	0.80	0.96
Nebraska	AWP less 8.71 percent	[1]4.38	1.00	0.90	0.98
North Dakota	AWP less 10 percent	4.25	1.00	0.82	0.96
South Dakota	AWP less 10.5 percent	4.75	1.00	0.97	0.99
South Atlantic					
Delaware	AWP less 6 percent	3.65	1.05	0.61	0.93
District of Columbia	AWP less 10 percent	4.50	1.02	0.79	0.97
Florida	WAC plus 7 percent	4.23	0.87	0.77	0.84
Georgia	AWP less 10 percent	4.41	1.02	0.87	0.99
Maryland	WAC plus 10 percent	[1]5.01	0.84	0.83	0.84
North Carolina	AWP less 10 percent	5.60	1.05	1.12	1.06
South Carolina	AWP less 9.5 percent	4.05	1.01	0.79	0.97
Virginia	AWP less 9 percent	4.40	1.02	0.83	0.98
West Virginia	AWP	2.75	1.16	0.53	1.01
East South Central					
Alabama	WAC plus 9.2 percent	5.40	0.83	1.02	0.87
Kentucky	AWP less 10 percent	4.75	0.99	0.90	0.97
Mississippi	AWP less 10 percent	5.16	1.03	1.03	1.02
Tennessee	AWP less 8 percent	3.91	0.99	0.77	0.94
West South Central					
Arkansas	AWP less 10.5 percent	[1]5.98	1.00	1.15	1.06
Louisiana	AWP less 10.5 percent	5.00	0.97	0.94	0.96
Oklahoma	AWP less 10.5 percent	5.10	1.00	0.99	1.00
Texas	AWP less 10.49 percent	[1]5.11	0.97	1.01	0.98

See footnotes at end of table.

Table 4—Continued
State Basis for Payment and Measures of Payment Adequacy, Overall and by Component: 1991

Division and State	Basis of State Payment		Payment Adequacy		
	Ingredient Cost	Dispensing Fee	Ingredient Cost	Dispensing Fee	Overall
			Ratio of Payments to Costs		
Mountain					
Colorado	AWP less 10 percent	4.08	1.00	0.75	0.94
Idaho	AWP	4.30	1.10	0.80	1.03
Montana	AWP less 10 percent	[1]4.05	1.04	0.76	0.98
Nevada	AWP less 10 percent	4.42	1.00	0.73	0.93
New Mexico	AWP less 10.5 percent	4.00	0.99	0.73	0.93
Utah	AWP less 12 percent	[1]4.30	0.98	0.75	0.92
Wyoming	AWP less 11 percent	4.70	1.06	0.86	1.01
Pacific					
Alaska	AWP less 5 percent	[1]7.84	1.10	0.95	1.05
California	AWP less 5 percent	4.05	1.11	0.63	1.02
Hawaii	AWP less 10.5 percent	4.67	1.06	0.71	0.95
Oregon	AWP less 11 percent	[1]3.77	1.04	0.66	0.94
Washington	AWP less 11 percent	[1]3.72	1.00	0.63	0.90

[1] Average obtained from State or calculated from simulation.
[2] New Jersey pays up to 6 percent based on pharmacy-specific data.

NOTES: AWP is average wholesale price. WAC is wholesale acquisition cost.

SOURCES: (National Pharmaceutical Council, 1992); (IMS America, 1991); (First Databank, 1992); (Health Care Financing Administration, 1991a); (Health Care Financing Administration, 1991b).

patterns, the Pacific and West South Central divisions have the greatest representation of States with payment adequacy greater than or equal to 1.

The bulk of the States (20) plus the District of Columbia fall into the 95-99 percent range on overall adequacy. Pharmacy payments in these States are less than 5 percent off in terms of covering the average cost of dispensing drug products, given the estimates made in this study. Note, however, that these costs do not include a net profit, and therefore ratios of less than 1 mean that the pharmacies are receiving payments that, on average, do not cover their costs when dispensing Medicaid prescriptions even with profits excluded. This does not mean, however, that the pharmacy is not generating a profit over all payers, because the pharmacy can charge more than average costs for non-Medicaid prescriptions.

States that pay 90-94 percent of estimated costs appear to be clustered in the Mountain region but are also found in other regions of the country. The five States that pay less than 89 percent of estimated costs are also well distributed across regions, with the exception that two of the five are located in the South, Florida and Maryland. As noted, pharmacies may participate in Medicaid even if average costs are not covered, as long as marginal costs are (Adams, Gavin, and Kreling, 1993). It can be shown that the effect of increased demand from public payers can result in a higher level of profit than without this demand, even given lower levels of public payment (Hay, 1983; Adams, Gavin, and Kreling, 1993). From national cost data available for chains and independents, it appears that the marginal costs of dispensing are no higher than 75-80 percent. We found State payments for dispensing to average 79 percent of costs and found no State whose payment is below 80 percent for overall (ingredient plus dispensing) payment.

Another way of looking at the adequacy of payment is to look at the component level. That is, a State may be paying

adequately for the dispensing costs but may be inadequate in its estimates of and payment for the acquisition costs of drugs. By examining each component separately, these issues can be highlighted.

Data in Table 4 include information on the separate components of the payment formula. The estimated adequacy of payment for ingredient costs is greater than 100 percent for the majority of States; only 12 of the States have ratios of less than 1, and 7 of these are within 0.03 (ratios equal 97-99 percent) of the cost estimates. Given the data limitations and our need to estimate costs at the State level, payments may actually equal or even exceed average costs in some of these States. There are, however, four States that pay less than 90 percent of estimated ingredient costs for the market basket of drugs frequently dispensed to Medicaid enrollees in their State. Two of these States have ratios of only 83-84 percent of these estimated costs. If these ratios are off by several percentage points, payment in these States may be approaching or actually below marginal costs.

The second component of payment adequacy relates to the difference between payment and estimated average costs for dispensing. These costs, as noted, include labor and overhead, and the total dispensing fee includes profit. The labor and overhead costs are also difficult for a State to estimate accurately on a timely basis. The results of the adequacy of payment for dispensing costs are uniformly consistent: States do not pay as well for this component. The national average ratio is 79 percent, as reflected in the data in Table 4. There are only seven States in which the payment for dispensing costs is estimated to be equal to or greater than average costs: Iowa, Kansas, North Carolina, Alabama, Mississippi, Arkansas, and Texas. There is some tendency for States in the New England and Middle Atlantic regions to

pay less adequately than States in other regions (their average ratio equals 64 percent), but for the remaining regions, the average payment-to-cost ratio equals 83 percent. The opposite holds in terms of the relative adequacy in paying for ingredient costs: The New England and Middle Atlantic States average 1.06 on this measure, and the remaining States average 1.00. This relates to the patterns seen in the basis of payment used in each State—States that pay relatively more for ingredient costs tend to pay relatively less for dispensing fees in their overall formulas for payment. As noted, however, given the complexity of our methods for estimating ingredient costs and payments, these ratios may be off by a few percentage points.

Study Limitations

Although this study has advanced our knowledge of the relative costs of purchasing drugs and the adequacy of State payments, there are several limitations that should be kept in mind as the results are reviewed and as future research is designed. Limitations regarding the data and analytic methods used include:

- Lack of actual data on Medicaid payments for the drug products included in the market basket required the use of a simulation and therefore the incorporation of several simplifying assumptions. Given that States pay the lesser of usual charges and estimated costs, our measures of payment are perhaps biased upward.
- Lack of State-level data on pharmacies' costs for drugs purchased and dispensed required making assumptions about the relative ability of large and small chain and independent pharmacies to receive discounts when purchasing ingredients for dispensing. Given this and no information on off-invoice discounts, our ingredient-cost estimates are subject to error.

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- Dispensing-cost estimates were largely based on survey data, which are not uniformly collected and have low response rates.
- Data on the profit component of the pharmacy business were lacking and therefore cost estimates omit them.

Even though these are shortcomings of the current study, the estimates of acquisition costs in each State have not been heretofore available, especially based on the same method for deriving each States' value. In addition, the simulated payments and comparisons of them to the estimated costs seemed to generate reasonable results and were found comparable to other measures of State payment where available.

SUMMARY AND DISCUSSION

The findings indicate that States are paying quite close to estimated average pharmacy costs. If costs are accurately reflected in the analysis, it would seem that these payment levels are more than adequate to induce participation among many pharmacies. They may also compare well with Medicaid payments to physicians, which averaged 74 percent of Medicare payments for the same set of services (Holahan, 1991), although comparisons to other third-party payments for pharmacy services were not included in this study. There was little statistical evidence from the broader study that adequacy of payment to pharmacies influences access. However, the number of participating pharmacies did appear to affect the number of prescriptions per enrollee (Adams, Gavin, and Kreling, 1993).

The analyses performed in this study provide insight into several aspects of State and Federal policy with respect to payment for pharmacy services. On average, the majority of States appear to be paying adequately enough to encourage participation among pharmacies. Problems may exist, however, for small independent pharmacies that are affected by higher fixed costs per prescription and less ability to obtain discounts on ingredient purchases. Although States' payments are more closely related to estimated ingredient costs, there are greater disparities in terms of payments and estimated costs for the dispensing of drug products.

Although this study did not address the overall goals and structure of payment methods, some statements can be made regarding this issue. In general, it is difficult for public payers to gauge the right level of payment for all pharmacies. Clearly, the most efficient administrative method is to develop an average payment that does not vary across pharmacies. The concern with this policy is that some pharmacies will be "overpaid" and others will be "underpaid" with respect to average costs. Yet, public payers may wish to vary average payments across pharmacies if there are factors beyond the control of the pharmacy (e.g., crime in the area, labor costs) that also affect the access of enrollees. If States find there are particular areas with access problems, changes in the payment structure might be constructive. For example, if there are non-participating pharmacies located in areas with high concentrations of poverty and there are demonstrable access problems, these particular pharmacies could be given financial incentives to encourage participation. Further research is needed on the role of hospital-based pharmacies in providing services to enrollees, especially in inner city areas.

Although this study provided some insight on the adequacy of State payment for pharmacy services, data on actual costs and payments would allow for a better analysis of the adequacy of payment and the

implementation of any alternative payment methods. Through either accounting data and/or cost surveys, States could improve their understanding of the differences in the costs of dispensing drugs between smaller versus larger pharmacies, chains versus independents, and urban versus rural pharmacies. Although it appears that across the States relatively low payments for dispensing fees are balanced by relatively high payments for ingredient costs, States may want to better align payments with each component cost (ingredient and dispensing) before considering restructuring of payment methods. Medicaid payments could then work in tandem with competitive pressures to produce pharmacy services at the lowest per unit costs.

If payment policy is believed to be an effective tool for influencing pharmacy behavior, States might consider incentives that encourage efficiency in dispensing and the use of generics. Alternatively, if a competitive bid process could be used to determine the lowest price at which pharmacies in a certain area are willing to provide services, this could be an optimal arrangement if the average costs of a competitive market are thereby revealed. However, it is important to realize that some pharmacies might bid at marginal costs that may not be sustainable in the long run. There would also be numerous complexities to address in terms of the location of the pharmacies with the lower bids, the number of bids to accept, the terms of the contract between public payer and pharmacy, and the dissemination of information of participating pharmacies to enrollees. Yet, if undue travel burdens are not placed on enrollees as a result of competitive bidding, such a policy could be beneficial to all.

It does not seem that it is the role of the public payer to ensure that the average costs of all pharmacies are covered. Certainly, it should not seek to cover the costs of a pharmacy that is either inefficient or making excessive profits. It also is not necessary that all payers pay average costs. As the theoretical model used in the broader study highlights (Adams, Gavin, and Kreling, 1993), Medicaid can pay less than average costs and still induce participation among pharmacies as long as payments are in excess of marginal costs. Public payments that are less than average costs might be justified on the basis of increased demand and therefore volume for providers; similar discounts may be achieved by health maintenance organizations through negotiation and contract. On the other hand, if the public payer consistently pays below average costs, inclusive of a typical rate of profit, the pharmacy, as any other provider, may seek to recoup these losses by charging higher prices to private payers than they otherwise would. This could have an impact on the financial stability of providers that rely heavily on payers that are paying below average costs (e.g., organized provider groups of all types), perhaps eventually affecting Medicaid enrollee access.

TECHNICAL NOTE

Description of Method Used to Reflect State Average Prescription Size

California's payment policy is unique among States and fosters large prescription sizes by limiting the number of refills that may be obtained (3) within a 75-day period and requiring a minimum dispensing quantity of 100 for maintenance drugs. Because we had data specific to California, we decided to use that specificity in our payment simulation. We also chose to use specific, State-level data for Michigan and Georgia individually. Two States, Oregon and

Nebraska, with dispensing-limit policies that were the same as Michigan's (100-day supply) were assigned the average prescription size that occurred for Michigan. An average prescription size calculated from all three Tape-to-Tape States' data was used for States with a payment policy that encouraged larger size prescriptions, that is, a limit of three prescriptions per month. This average size was used for five States: Arkansas, Oklahoma, South Carolina, Texas, and Wyoming. For all other States and the District of Columbia, an average prescription size calculated from the Georgia and Michigan Tape-to-Tape data results were used. For these States, the averaging of the two States' data helped reduce variation related to medical practice differences in the States. Finally, the overall State market basket payment was found by summing the total State payments for each prescription type, weighted by prescription volume.

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